CLAIMS

What is claimed is:

1. A method for enlarging still images or single video frames in an electronic media comprising the steps of:

   a. selecting an image for enlargement;

   b. selecting a filtering algorithm from a pre-determined library of algorithms based on the desired quality of the enlarged image;

   c. selecting a filter coefficients from a pre-determined library of filter coefficients based on the desired quality of the enlarged image and the speed of operation of the algorithm;

   d. constructing a filter mask for determining the value of the pixels to be added for enlarging the image;

   e. executing the filter algorithm on the horizontal rows of the image at each point where a pixel is to be added to determine the value of the pixel to be added; and

   f. executing the filter algorithm on the vertical columns of the image at each point where a pixel is to be added to determine the value of the pixel to be added.

2. A method for reducing the size of still images or single video frames in an electronic media comprising the steps of:

   a. selecting an image for reduction;

b. selecting a filtering algorithm for enlarging the video from a pre-determined library of algorithms based on the desired quality of the reduced image;

c. constructing a filter mask using pre-designated filter coefficients for determining the value of the pixels to be added for enlarging the image;

d. enlarging the image to twice its original size by executing the filter algorithm on the horizontal rows of the image at each point where a pixel is to be added to determine the value of the pixel to be added and executing the filter algorithm on the vertical columns of the image at each point where a pixel is to be added to determine the value of the pixel to be added;

a. determining the level of reduction desired;

b. selecting filter coefficients based on the level of reduction desired;

c. increasing the value of the filter coefficients based on the desired speed of the reduction; and

d. executing a pre-designated reduction filtering algorithm using the filter coefficients to translate the pixels two by two from the enlarged image into the number of pixels required for the desired level of reduction in the reduced image.

3. A new method for the scaling of images with the help of a polynomial interpolation, which includes:

a. a method for the scaling of images as a whole an even number of times by width and length (by two dimensions) or by one dimension;

b. a rapid method for the scaling (reduction) of an image by a fraction of a number by any one of its dimensions.

4. A method for the scaling of a video sequence, including the following aspects:

a. the input video sequence may be in any known video format (for example SIF, QCIF);

b. the input sequence of images is presented as one file, for example, as a videofilm;

c. processing of the video sequence takes place frame-by-frame;

d. the given method may be used for the processing of a regenerated video sequence after compression by any sort of coding method;

e. the output video sequence also constitutes one file;

5. A system developed for the uniform scaling of color images of different sizes; the given system permits:

a. an increase in the dimensions of the input image horizontally;

b. an increase in the dimensions of the input image vertically;

c. a change in the dimensions of the input image both horizontally and vertically, preserving the proportions of the original image;

d. a reduction of the image by a fraction vertically;

e. a reduction of the image by a fraction horizontally; and

f. a reduction of the image by a fraction both vertically and horizontally.